UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,780	03/26/2004	Yang Gi Kim	LT-0054	7020

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EXAMINER
BRINEY III, WALTER F

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/809,780	KIM ET AL.
	Examiner	Art Unit	
	Walter F. Briney III	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>26 March 2004</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-29</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-29</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>26 March 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All   b) ☐ Some *   c) ☐ None of:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____..
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1.   **Claims 16-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

Claims 16-23 recite "digital audio systems" comprising only software or firmware elements, which means they consist only of abstract instructions for operating a computer. See paragraphs [60] and [61] of applicant's specification. They are not tangibly embedded on a computer readable medium and, thus, are non-statutory.

Claims 24-29 recite "apparatuses" comprising only software or firmware elements, which means they consist only of abstract instructions for operating a computer. See paragraphs [60] and [61] of applicant's specification. They are not tangibly embedded on a computer readable medium and, thus, are non-statutory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   **Claims 1-19 and 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Replay Gain standard (taken from http://www.replaygain.org on 19 August 2007, and last**

updated on 10 October 2001) in view of MP3Gain version 0.9.7 (downloaded from

http://web.archive.org/web/20021203004344/home.hccnet.nl/h.edskes/mirror.htm on 19

August 2007, binary first available on 30 October 2002, six screenshots). The following list

of references are used herein strictly for establishing dates of certain prior art features

used to reject the claims: Windows XP article retrieved online from Wikipedia

url:<http://en.wikipedia.org/wiki/Windows_XP> on 19 August 2007; MP3Gain 0.9.7 Final

Beta forum retrieved online from

URL:<http://www.hydrogenaudio.org/forums/lofiversion/index.php/t4132.html> on 19

August 2007.

Claim 1 is limited to "a method for adjusting an output level of audio data to be

reproduced." In rejecting this claim reference is made primarily to the teachings of the

Replay Gain website (http://www.replaygain.org as retrieved on 19 August 2007). As

background, Replay Gain is a standard for determining the audio level of a plurality of

music files for the purpose of normalizing the playback volume across said plurality of

files. See The Problem statement on the Introduction page. In order to determine the

level of each track, a pre-playback process is carried out on each track to determine the

RMS level in a plurality of 50ms frames. A predetermined, representative RMS value is

then extracted and used as the overall track level. See the Calculation page as well as

the RMS Energy page. The difference between this overall track level and a

predetermined standard (e.g. 83dB) is then stored in the audio file as metadata so upon

reproduction each track is reproduced at the predetermined standard volume level. In

order to determine the RMS level in the plurality of frames, it follows that the audio data

must be "temporarily stored." The RMS level, thus, corresponds to the "output level of

the...audio file." The Replay Gain difference is then read by the player during playback

and used to "adjust a gain of an audio output amplifier." See section one of the Outline

of Player Requirements page. However, the Replay Gain standard makes no provision

for "searching a recording medium for an audio file requested to be played, said

recording medium storing a plurality of audio files;" this limitation is obvious.

In particular, one pseudo-implementation of the Replay Gain standard entitled

MP3Gain actually provides a GUI for calculating the Relay Gain value. MP3Gain 0.9.7

Final Beta was first made publicly available 30 October 2002 according to author's post

to Hydrogen Audio forum on the same date; see MP3Gain screenshot 1 as well as the

forum posting. The two references diverge in that MP3Gain actually modifies the

volume level of the input audio file. Yet, all focus, for the purposes of this Office Action,

is given to the manner in which audio files are acquired for Replay Gain calculation.

See MP3Gain screenshot 2. As can be seen in screenshot 3, the Add File(s) feature

opens a standard Microsoft Windows form for browsing/searching the file system for

files to be analyzed. It is noted that the version of Microsoft Windows used for

illustration is Windows XP, which was first available 25 October 2001—see Windows

XP article, first paragraph. Screenshots 4 and 5 illustrate the analysis process and

results.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to provide a GUI as taught by MP3Gain for the purposes of calculating the

Replay Gain value under the Replay Gain standard since the standard itself is silent to

any means for embodying the calculator and because MP3Gain stands as an actual art

recognized implementation of a Replay Gain value calculator.

It is further noted that since Replay Gain is a standard for normalizing the sound across several files, it is undoubtedly likely and common sense (although not inherent) that the storage medium would hold a plurality of audio files. To this end, the examiner takes Official Notice of the fact that storing more than one audio file on a recording medium was well known. A computer user commonly stores more than one file—indeed nearly all albums consist of a plurality of tracks. Therefore, it would also have been obvious to one of ordinary skill in the art at the time of the invention to store a plurality of audio files on the recording medium that holds the audio files analyzed by the Replay Gain standard.

Claim 2 is limited to "the method of claim 1," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. The MP3Gain standard allows for a medium storing various types of audio files. See the "Where to store them?" section of the Replay Gain File Format page. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 3 is limited to "the method of claim 2," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. The "Where to store them?" section of the Replay Gain File Format page indicates that at least MP3 audio is to be stored on the recording medium from which said searched audio file is retrieved. Moreover, MP3, or MPEG-1 layer 3 audio, is lossy-compressed audio. In order to calculate the RMS-energy of 50ms frames it is inherent that the MP3 file is first decompressed: "converted by an audio codec corresponding thereto." Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 4 is limited to "the method of claim 1," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. Up to this point only the RMS-energy (i.e. average level) of 50ms frames has been referred to as what is measured; however, the Replay Gain standard also provisions measurement of a searched audio file's peak level. In this way, both a "peak level or average level of said temporarily stored audio data" are determined and output as detected output levels. Therefore, the Replay Gain standard in view of Mp3Gain makes obvious all limitations of the claim.

Claim 5 is limited to "the method of claim 4," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. The measured RMS-energy, as mentioned apropos the rejection of claim 1, is formed from a "reduced subset of the temporarily stored audio data;" to wit, the RMS values are sorted into a vector with increasing order and the 95th percentile index is chosen as the representative RMS value. See the Statistical Processing page. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 6 is limited to "the method of claim 1," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. It inherently follows that searched audio files must then be read in order to commence Replay Gain analysis. This corresponds to "reading said searched audio file from said recording medium." As shown apropos the rejection of claim 3 that MP3 files must first be decompressed—i.e., "converting [said searched audio file] into said audio data to be reproduced." The converted data is then processed in 50ms frames to yield RMS

values. These are not reproduced in any way since the result of Replay Gain

processing is intended to produce a Replay Gain value to be stored along with the

analyzed audio information and used later by a player for playback. See the Outline of

Player Requirements, section 1. The 50ms frames then correspond to temporarily

stored audio data of an amount corresponding to a predetermined period of time or a

predetermined capacity, among the converted audio data, under the condition that said

converted audio data is not amplified and outputted." From these RMS values, an

"output level of the temporarily stored audio data" is determined in the manner

described apropos the rejection of claim 5. Therefore, the Replay Gain standard in view

of MP3Gain makes obvious all limitations of the claim.

Claim 7 is limited to "the method of claim 6," as covered by the Replay Gain

standard in view of MP3Gain and the date establishing references. The RMS value

finally used as the output level is then compared against a reference level—e.g., 83 dB.

See the Calibration page. This corresponds to "comparing said detected output level

with a predetermined reference level." The difference value between these two

measures is taken and stored as the Replay Gain value. The gain of the amplifier is

then adjusted upward or downward based on this difference. See the Outline of Player

Requirements page, section 1, as well as the Scale to the Replay Gain page, "Scaling

by the Relay Gain adjustment" section. It follows from the above that the output audio

will then be amplified according to the adjusted gain, such that the output is at the

reference level of, for example, 83dB. Therefore, the Replay Gain standard in view of

MP3Gain makes obvious all limitations of the claim.

Claim 8 is limited to "the method of claim 1," as covered by the Replay Gain

standard in view of MP3Gain and the date establishing references. The RMS value

finally used as the output level is then compared against a reference level—e.g., 83 dB.

See the Calibration page. This corresponds to "comparing said detected output level

with a predetermined reference level." The difference value between these two

measures is taken and stored as the Replay Gain value. The gain of the amplifier is

then adjusted upward or downward based on this difference. See the Outline of Player

Requirements page, section 1, as well as the Scale to the Replay Gain page, "Scaling

by the Relay Gain adjustment" section. It follows from the above that the output audio

will then be amplified according to the adjusted gain, such that the output is at the

reference level of, for example, 83dB. Therefore, the Replay Gain standard in view of

MP3Gain makes obvious all limitations of the claim.

Claim 9 is limited to "the method of claim 1," as covered by the Replay Gain

standard in view of MP3Gain and the date establishing references. According to, at

least, the radio replay gain adjustment mode, Replay Gain values are calculated on a

track-by-track basis. See the "'Radio' Replay Gain adjustment" section of the "Radio"

and "Audiophile" gains page. This corresponds to "detecting and adjusting are

performed on an audio file basis." Therefore, the Replay Gain standard in view of

MP3Gain makes obvious all limitations of the claim.

Claim 10 is limited to "an article including a machine-readable storage medium

containing instructions for adjusting and output level of audio data to be reproduced."

Replay Gain is described in the context of software. In addition, MP3Gain is clearly

software. In this respect, there must be a machine-readable storage medium containing instructions...said instructions, when executed in a digital audio system, causing the system to perform the functions disclosed and taught by those references, including the ones recited in this claim as will now be shown. The search, temporary storing and adjusting of gain claimed herein are essentially the same as the steps recited in claim 1, as covered by the Replay Gain proposal in view of MP3Gain. Therefore, the Replay Gain proposal in view of MP3Gain makes obvious all limitations of the claim.

Claims 11-14 are limited to "the article of claim 10," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. These claims recite essentially the same limitations as, respectively, claims 3-6 and are rejected for the same reasons. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claims.

Claim 15 is limited to "the article of claim 10," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. This claim recites essentially the same limitations as claim 8, with the addition of "second amplify the first amplified audio data to be reproduced according to a user selected output level of the audio file to be played." This additional step corresponds to the pre-amp step taken by the player and as described in the Outline of Player Requirements page, section 2. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 16 is limited to "a digital audio system." Since the Replay Gain standard and MP3Gain are software all the elements described referred to in this rejection are

abstractions of the functions performed by these references. The Replay Gain standard includes "read means for reading an audio file requested to be played from a recording medium." This is required to perform the function of Replay Gain analysis on a selected file that is inherently stored on a recording medium. See the Calculation page. The medium is described as containing various types of audio files. See the Replay Gain File Format page. One of the stored formats is MP3, which is compressed audio, and must be decompressed first to enable calculation of the RMS values of 50ms frames. This requires "conversion means for converting the read audio file into audio data to be reproduced." The 50ms frames must be temporarily stored, such that "storage means for temporarily storing said audio data to be reproduced" must exist. The RMS level is then calculated and a representative is picked. See the Statistical Processing page. This process is carried out by "detection means for detecting an output level of the temporarily stored audio data." In order to apply the gain to the to be reproduced audio data an "audio amplifier means for amplifying and outputting said audio data to be reproduced" also must exist. Finally, control means—i.e., any means not already described—must exist for "adjusting a gain of said audio amplifier means on the basis of said detected output level." See the Scale to the Replay Gain page. The control means also includes the search function carried out by the MP3Gain software, which was shown to be obvious for use in implementing control of the read means to search said recording medium for said audio file requested to be played and read the searched audio file from said recording medium" apropos the rejection of claim 1. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 17 is limited to "the system of claim 16," as covered by the Replay Gain

standard in view of MP3Gain and the date establishing references. It is again noted

that the applied prior art consist of software for use on a PC or portable computer. This

is evidenced by the fact that MP3Gain is used on Windows OS. Moreover, the Replay

Gain standard discloses on the Replay Gain File Format page that, at least, MP3 audio

file is stored on the recording medium. Therefore, the Replay Gain standard in view of

MP3Gain makes obvious all limitations of the claim.

Claim 18 is limited to "the system of claim 16," as covered by the Replay Gain

standard in view of MP3Gain and the date establishing references. This claim recites

just part of claim 6, and is rejected for the same applicable reasons.

Claim 19 is limited to "the system of claim 16," as covered by the Replay Gain

standard in view of MP3Gain and the date establishing references. This claim

essentially recites that the detection means performs the function of claim 4 and is

rejected for the same reasons. Therefore, the Replay Gain standard in view of

MP3Gain makes obvious all limitations of the claim.

Claim 21 is limited to "the system of claim 16," as covered by the Replay Gain

standard in view of MP3Gain and the date establishing references. This claim

essentially recites that the detection means performs the function of claim 5 and is

rejected for the same reasons. Therefore, the Replay Gain standard in view of

MP3Gain makes obvious all limitations of the claim.

Claim 22 is limited to "the system of claim 16," as covered by the Replay Gain

standard in view of MP3Gain and the date establishing references. This claim

essentially recites that the control means performs the function of claim 8 and is rejected for the same reasons. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 23 is limited to "the system of claim 16," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. The "Radio" and "Audiophile" gains page establishes that Replay Gain analysis occurs on a track-by-track basis. The remaining claim limitations correspond to the method steps of claims 6 and 7, in general, and are rejected for the same reasons.

Claim 24 is limited to "an apparatus for adjusting an output level of audio data to be reproduced." The elements of this claim correspond directly to elements from claim 16 as follows: the converter is to the conversion means as the detector is to the detection means as the controller is to the control means. It is noted that the converter of this claim includes one further limitation; to wit, that the converter is configured to receive a plurality of audio files. However, this is provided for by the converter of the Replay Gain standard since it operates on a track-by-track basis. See the "Radio" and "Audiophile" gains page. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 25 is limited to "the apparatus of claim 24," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. An amplifier must exist in the Replay Gain standard in order to amplify the gain adjusted audio data to be reproduced for output. Moreover, this amplifier must be coupled to the controller so that its gain can be controlled according to the Replay Gain value. The audio data is

analyzed in 50ms frames, which requires a 50ms buffer, i.e., a "storage device configured to temporarily store said data to be reproduced. Also, the recording medium holding the files prior to analysis is disclosed as containing MP3 audio files. See the Replay Gain File Format page. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 26 is limited to "the apparatus of claim 25," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. The functions performed by the elements of this claim are identical to the corresponding elements in claim 23, and the claim is rejected for the same reasons. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 27 is limited to "the apparatus of claim 26," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. The function recited in this claim is performed by the method of claim 6, and the claim is rejected for the same reasons. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 28 is limited to "the apparatus of claim 27," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. The functions recited in this claim are performed by the methods of claim 4 and 5, and the claim is rejected for the same reasons. Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations of the claim.

Claim 29 is limited to "the apparatus of claim 24," as covered by the Replay Gain standard in view of MP3Gain and the date establishing references. This claim recites

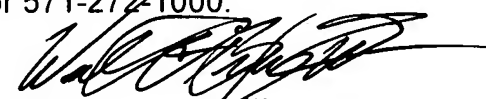essentially the same limitations as claim 22 and is rejected for the same reasons.

Therefore, the Replay Gain standard in view of MP3Gain makes obvious all limitations

of the claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Walter F. Briney III whose telephone number is 571-

272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Walter F Briney III
Examiner
Art Unit 2615

8/20/07